

INFORMATION STATEMENT & CONSENT FORM

Computerised 3D Gait Analysis

1. About:

This document explains computerised 3D Gait Analysis.

Please read this Information Statement carefully, and contact the clinic for further information or clarification.

Once you have understood what computerised 3D Gait Analysis is about, and you wish to proceed, please sign the consent form at the end of this document and bring it to your appointment.

2. The principal assessors.

- I. *Dr Oren Tirosh* is the principal movement analysis specialist, holding a Ph.D in biomechanics from Deakin University. Oren has conducted research and clinical gait analysis for 15+ years at Swinburne University of Technology; the Murdoch Children's Research Institute; Orthopaedic unit at the Royal Children's Hospital; Deakin University; Victoria University.
- II. *Dr Simon Sostaric* is the principal exercise physiologist, holding a Ph.D in muscle physiology from Victoria University. Simon has 25+ years' experience in sport & exercise science, clinical research, methods of injury prevention and musculoskeletal rehabilitation. Simon is also a research consultant at RMIT University.

3. What is computerised 3D gait analysis?

For recognised biomechanical research and clinical applications, such as hospital-based surgical interventions, only computerised 3D gait analysis is considered sufficiently precise and reliable. 3D analysis is therefore recognised as the "gold standard" of clinical gait evaluation, superior to common 2D video analyses used by numerous allied health clinicians. Computerised 3D gait analysis allows the care team to quantify the way you are walking or running, to identify how to help you to walk or run more efficiently. The analysis can also assist with identifying movement patterns posing high risk to injury; the magnitude of your gait impairment; and precisely measure the effects of intervention. The data that is collected during the 3D gait analysis includes tempo-spatial and joint angles in 3-dimensions, including the trunk, pelvis, hip, knee, ankle, and foot. To accomplish these tasks, several infra-red cameras record your movement and calculate the joint angles in 3-dimensional planes. The precision of these systems is sub millimetre, with a maximum 0.5 mm error.

4. What will you be asked to do?

When you are referred to the gait lab for evaluation, you are required to wear shorts or short running tights, and your comfortable walking or running shoes. You may also be asked to walk barefoot. You will need to wear T-shirt; however, it is preferable for females to wear a sport bra and males to be top-less in order to allow better access to the pelvic bone landmarks. Reflective markers (~10mm diameter) are attached to the skin using double sided adhesive tape to predetermined bony landmarks on the body to be seen by the infra-red cameras, which subsequently calculate the joint angles.

You will be asked to walk on the treadmill at your preferred comfortable walking speed. If possible, walking will be approximately 5 minutes duration, or a little longer in some circumstances. If your running gait is evaluated, a few sub-maximal speeds are normally required. You will be asked to run 3 short intervals of 2 minutes duration each at the selected speeds. A video is also made to document your gait pattern from the side and the back. After the information is collected, the reflective markers are removed, and the data collection portion of the evaluation is complete.

If you have experienced recurring lower leg pain whilst running, we would also recommend investigating loading impact, which can be measured via small accelerometers attached to both legs; running overground and on the treadmill.

5. What Information do you get?

The gait lab team works together to analyse the data, interpret the findings, and prepare a report to be reviewed with your rehabilitation team. The team then discusses the report along with the videotape and arrives at final recommendations. Your clinical gait analysis data is interpreted on the basis of 12 graphs, including kinematic variables that describe your lower extremity movement pattern in 3 orthogonal planes. Features to be interpreted clinically might include the magnitude and waveforms of different traces; the difference between the traces and those from unimpaired walking individuals; the differences between left and right sides; and the differences between pre and post intervention. Importantly, this output has been standardised by the industry.

6. What are the benefits?

This information will assist medical and allied health professionals to better understand the cause of your injury or dysfunction; predict the outcome of different interventions and to tailor intervention programs more effectively.

7. What are the potential risks of taking this assessment?

There are generally no risks or side effects from the 3D gait assessment. You will be asked to walk or run on the treadmill only at the speed that you are comfortable with. Please let us know if you are not comfortable on the treadmill. The application and removal of the reflective markers might be associated with very minor discomfort.

CONSENT

I _____ have read the above information and understand the purpose of the computerised 3D Gait Analysis.

- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I acknowledge that I will be videotaped during the 3D gait analysis procedure.
- I have been informed that the information I provide will be kept confidential.

Signature: _____

Date: _____

Contact:

Dr Simon Sostaric
Melbourne Sports & Allied Health Clinic
Suite 1, 75 Keilor Rd, Essendon North VIC 3041
T: 03 9374 4077
F: 03 9374 4088
E: enquiry@msahc.com.au